

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

1. (currently amended) ~~Process~~ A process for the analysis of a sample of a complex molecule relative to a reference batch of the same complex molecule so as to determine their degree of similarity and/or the nature of their process of production, comprising:

~~characterized in that cleaving~~ the complex molecule ~~is cleaved~~ into at least two molecular sub-entities, in that, if necessary, ~~this cleavage being~~ at least one of the cleavage products is cleaved into at least two new molecular sub-entities and in that this cleavage operation is repeatable on the molecular sub-entities until analyzable and isolable molecular sub-entities are obtained, in that there is determined, as a function of the atomic sites of the cleavage products in question, by generally chemical cleavage reactions, the isotope or isotopes to be studied, in that there is established, for at least a portion of the cleavage products, their isotopic profile at least by nuclear magnetic resonance NMR for the measurement of the specific positional isotopic content and in that the isotopic profile of the cleavage products is compared to the isotopic profile of primary materials already cataloged and taking part in

the synthesis process of the reference complex molecule and/or in the isotopic profile of the cleavage products of the reference complex molecule subjected to the same cleavage reactions.

2. (currently amended) ~~Process~~ A process according to claim 1, ~~characterized in that~~ wherein, starting from a selected isotope or isotopes, there is established the isotopic profile of at least a portion of the cleavage products at least by nuclear magnetic resonance NMR for the measurement of the specific positional isotopic content and if desired by mass spectrometry, of the isotopic ratios for measuring the overall isotopic content.

3. (currently amended) ~~Process~~ The process according to claim 1, ~~characterized in that~~ wherein, during production of the complex reference molecule before being subjected to the same cleavage reactions as the complex molecule to be analyzed, there is selected at least one primary material and/or an intermediate product and/or material synthesis conditions to give to at least one of the cleavage products of the reference complex molecule a unique characteristic detectable during analysis without enrichment by isotopic marking and/or the addition of exogenous elements.

4. (new) A process for the analysis of a sample of a complex molecule relative to a reference batch of the same complex molecule, comprising:

cleaving said sample complex molecule so that analyzable and isolable molecular sub-entities are obtained;

determining an isotope or isotopes of the cleavage product by Nuclear Magnetic Resonance (NMR);

comparing the isotopic profile of the cleavage products to the isotopic profiles of primary materials already cataloged and taking part in the synthesis process of the complex molecule of the reference batch and/or comparing the isotopic profile of the cleavage products of the sample to the isotopic profile of the reference complex molecule subjected to the same cleavage reaction; and

analyzing results of the comparison to determine the degree of similarity of the complex molecule of the sample relative to the complex molecule of the reference batch.

5. (new) A process for the analysis of a sample of a complex molecule relative to a reference batch of the same complex molecule, comprising:

cleaving said sample complex molecule so that analyzable and isolable molecular sub-entities are obtained;

determining an isotope or isotopes of the cleavage product by Nuclear Magnetic Resonance (NMR);

comparing the isotopic profile of the cleavage products to the isotopic profiles of primary materials already cataloged and taking part in the synthesis process of the complex molecule of the reference batch and/or comparing the isotopic profile of the cleavage products of the sample to the isotopic profile of the reference complex molecule subjected to the same cleavage reaction; and

analyzing results of the comparison to determine how the sample complex molecule was synthesized.